In the Claims

1. (Currently amended) A method for identifying plant genetic material whose actions cause increased production of a metabolite or metabolites of interest in plant cells, said method comprising:

a) causing random integration into the plant genome in plant protoplasts of at least one enhancer-containing T-DNA genetic element harboring sequences to enable bacterial replication and selection;

b) growing said protoplasts to the stage of callus cultures;

c) sampling said callus cultures in such a manner as to retain viability ~~of said clonal cultures~~ thereof and to obtain cells for continued growth and recovery;

d) analyzing said ~~samples~~cells by at least one radioligand displacement assay to identify the callus cultures producing the metabolite or metabolites of interest; and

e) isolating and identifying the plant genetic material, the action of which has been stimulated by the enhancer-containing T-DNA genetic element in the sampled, identified callus cultures.

2. (Original) A method of claim 1, wherein the plant genetic material which is identified is a plant gene whose action causes a plant cell to produce an increased amount of a metabolite or metabolites of interest.

3. (Original) A method of claim 2, wherein the plant genetic material which is identified is a regulatory gene.

4. (Original) A method of claim 1, wherein the analysis of callus cultures detects the production of metabolites of interest having pharmacological properties.

5. (Currently cancelled).

6. (Original) A method of claim 1, which comprises the further step of propagating at least one callus culture producing said metabolite or metabolites.

7. (Original) A method of claim 1, wherein said plant is a tobacco plant.

8. (Original) A method of claim 1, wherein said enhancer sequence is a plant viral enhancer sequence.

9. (Original) A method of claim 8, wherein said enhancer sequence is delivered to the plant via *Agrobacterium tumefaciens*.

10. (Currently Amended) A method of claim ~~5~~1, wherein said radioligand is a nicotinic acetylcholine agonist.

11. (Currently Amended) A method of claim ~~5~~1, wherein said radioligand is a nicotinic acetylcholine antagonist.

12. (Currently Amended) A method of claim–1~~5~~, wherein said radioligand is ^{3}H-epibatidine.

13. (Currently Amended) A method of claim ~~5~~1, wherein said radioligand is ^{3}H-methyllycaconitine.

14. (Withdrawn) A method for detecting a gene product in a plant comprising;

a) causing integration of at least one enhancer-containing T-DNA in a plant protoplast;

b) growing said protoplast to the stage of callus culture;

c) sampling said callus in such a manner so as to retain viability of said callus culture;

d) detecting a metabolite of interest in the event that the metabolite of interest is present.

15. (Withdrawn) A method of claim 14, wherein a metabolite of interest is detected.

16. (Withdrawn) A method of claim 15, wherein said metabolite is detected with at least one radiolabeled ligand binding assay.

17. (Withdrawn) A method of claim 15, which further comprises the step of propagating at least one daughter culture.

18. (Withdrawn) A method of claim 14, wherein said plant is a tobacco plant.

19. (Withdrawn) A method of claim 14, wherein said enhancer sequence is a plant viral enhancer sequence.

20. (Withdrawn) A method of claim 18, wherein said enhancer sequence is contained within Agrobacterium tumefaciens.

21. (Withdrawn) A method of claim 17, wherein said radiolabeled ligand is selected from the group consisting of nicotinic acetylcholine agonists.

22. (Withdrawn) A method of claim 17 wherein said radiolabeled ligand is selected from the group consisting of nicotinic acetylcholine antagonists.

23. (Withdrawn) A method of claim 17, wherein said radiolabeled ligand binds nicotinic Acetylcholine receptors.

24. (Withdrawn) A method of claim 18, wherein said radiolabeled ligand is ^{3}H-epibatidine.

25. (Withdrawn) A method for detecting a product of secondary metabolism in plants comprising:

a) co-cultivating protoplasts with *Agrobacterial* cells harboring an activation-tagging vector;

b) embedding the protoplasts in agarose;

c) transferring the protoplasts to a larger surface area to allow further growth to form calli tissue;

d) excising individual calli tissue;

e) partially macerating individual calli tissue in multi-welled microtitre plate whereby liquid supernatant is formed;

f) removing the liquid supernatant;

g) analyzing the liquid supernatant for the product of secondary metabolism; and

h) optionally adding growth medium to tissues remaining in the microtitre plate.

Information Disclosure Statement

A Corrected Information Disclosure Statement is being filed to correct the incomplete references listed on the PTO 1449 form previously filed on 6 February 2003. A complete description of the references has been included in the corrected PTO-1449 form.